



Middle Years Home Economics/ Industrial Arts

Linking Learning
To Living

A Support Document
for Teachers



MIDDLE YEARS
HOME ECONOMICS/INDUSTRIAL ARTS:
LINKING LEARNING TO LIVING

*A Support Document
for Teachers*

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PREFACE

Purpose

Home Economics/Industrial Arts education studies is recognized curricula from Kindergarten to secondary levels in schools throughout the world. In Canada, these curricula have a heritage that began at Confederation. The ability of Home Economics/Industrial Arts programming to enhance the basic quality of life has helped these subject areas gain wide acceptance across Manitoba.

The purpose of this renewal document is to reshape and restructure the current Home Economics and Industrial Arts programming to reflect best practice to better meet the needs of the Middle Years student.

Current Curricula Manitoba Education and Youth	
Curricula	Year of Publication
Home Economics 7-9: Clothing and Textiles	1982
Home Economics 7-9: Food and Nutrition	1982
Home Economics 7-9: Human Development	1982
Industrial Arts 7-9: Graphic Communications	1983
Industrial Arts 7-9: Power/Energy	1983
Industrial Arts 7-9: Manufacturing	1984
Industrial Arts 7-9: Construction	1984

Goals of This Support Document

The goals of the Home Economics/Industrial Arts support document are to

- provide conceptual and contextual information on the importance of Home Economics and Industrial Arts programs and the learning needs of Middle Years students
- provide a glossary of renewed instructional approaches and assessment tools/methods
- provide guidelines/resources on how to rewrite existing Home Economics/Industrial Arts curricula objectives as specific and general learning outcomes

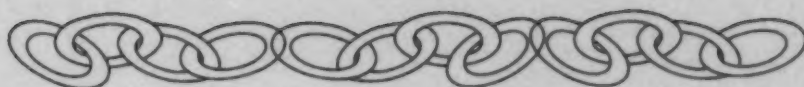


- provide samples of how to rewrite objectives as general learning outcomes and implement current instructional approaches and assessment tools/methods

Teachers are encouraged to adapt the instructional approaches and assessment tools/methods. These approaches and methods give teachers flexibility in providing students with connections within the global community in which they live.

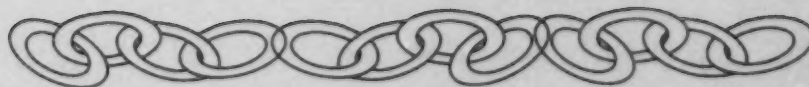
The skills, knowledge, and attitudes required to support the learning outcomes and themes will integrate the four foundation skill areas: literacy and communication, problem solving, human relations, and technology (Manitoba Education and Training, *A Foundation for Excellence*, 1995).

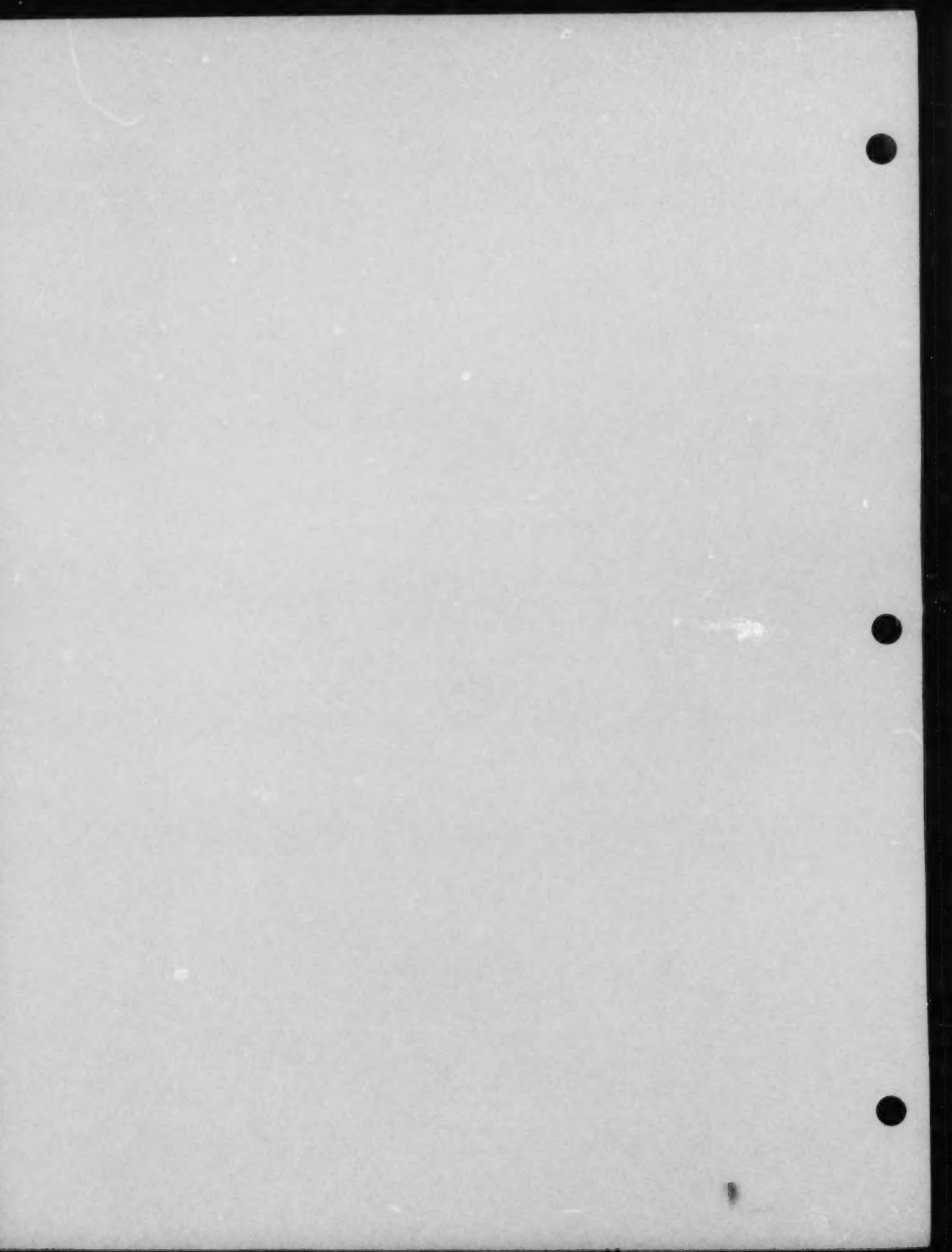
This document has been designed to allow for maximum flexibility to provide Middle Years students in Manitoba with the opportunity to experience the hands-on skills development, knowledge, and resources available in Home Economics/Industrial Arts education. Middle Years education can be categorized from Grades 5 to 8 or Grade 6 to Senior 1, depending on the educational setting. It is for this reason that four levels of learning outcomes (exploratory, introductory, intermediate, and advanced) that are not grade-specific have been outlined in this document. The four levels provide an opportunity for each school to select the time allocation that suits the needs of their learning environment to incorporate Middle Years Home Economics/Industrial Arts programming into their educational plan. The inclusion of Home Economics/Industrial Arts education in the Middle Years involves the implementation of the three Cs—*Commitment* to Middle Years Home Economics/Industrial Arts education by *Careful* and *Cooperative* timetabling.



**Linking Living to Learning:
Rationale of Home Economics/
Industrial Arts Education**

- **Active-Interactive Learning**
- **Balancing Work and Home Life**
- **Employability Skills, Essential Skills,
and Career Development Skills**



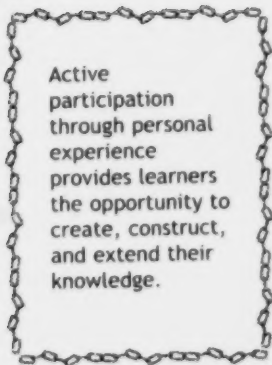


LINKING LIVING TO LEARNING: RATIONALE OF HOME ECONOMICS/ INDUSTRIAL ARTS EDUCATION

Active-Interactive Learning

Canada's information society must have an educational system confident in its ability to meet the challenges of the 21st century. Our society is characterized by rapid social, economic, and technological change. It is increasingly critical to our nation's social and economic prosperity that Canadians be able to manage their own work and personal lives. Manitoba schools must provide relevant programs to help students of all ages take charge of their life/work destiny in a complex and changing world.

Curricula must provide a balance of knowledge and skills for our youth to become literate and numerate as well as provide a forum for intellectual growth. The acquisition of knowledge takes many forms and cannot be communicated through words alone. Research shows that as much as 80% of the classroom may be made up of students who don't learn auditorily (Sousa, 1998). Students learn in different modalities—kinaesthetic, auditory, visual, and tactile. Programs with learning activities that incorporate the modalities provide more opportunities for success for students (Tileston, 2000). Learning is an active-interactive process. Active participation through personal experience provides learners the opportunity to create, construct, and extend their knowledge.

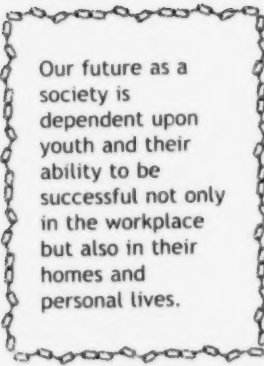


Active participation through personal experience provides learners the opportunity to create, construct, and extend their knowledge.

Tileston explains that our curricula are worthless if we cannot convince students that they are learning useful life skills. Learning is more effective when it occurs in meaningful and relevant contexts. Home Economics/Industrial Arts provides the setting for youth to develop and to practise skills for daily living—skills that may not be taught outside of the school environment. Home Economics/Industrial Arts provides a unique contribution to education where students acquire many skills that benefit them throughout their work and home life. The more effective we are in our daily lives, the more effective society becomes as a whole.

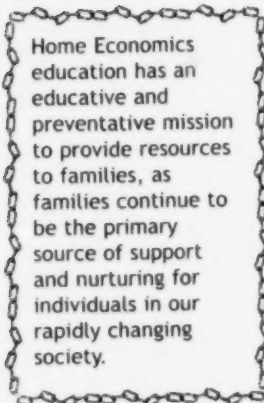
Balancing Work and Home Life

Our economy will continue to be driven by globalization, demographic shifts, and technological advances. These will create highly competitive, rapidly changing work environments for the next generation. The social, economic, and technological changes occurring in society affect work as well as personal and social relationships. Our future as a society is dependent upon youth and their ability to be successful not only in the workplace but also in their homes and personal lives.



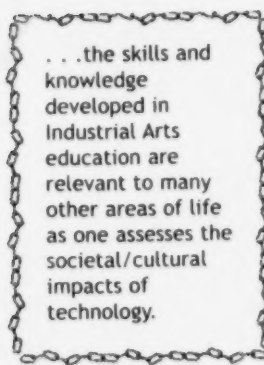
Our future as a society is dependent upon youth and their ability to be successful not only in the workplace but also in their homes and personal lives.

Home Economics is not solely based on the nature and challenges of securing housing, acquiring appropriate clothing, caring for children, and food security. The curricula integrate the theories and practices of processes involved in daily living issues in the areas of human relationships, consumerism, food and nutrition, clothing and textiles, and housing and aesthetics. Today's Home Economics programming has moved away from teaching manual housekeeping and care-giving skills exclusively, and moved towards decision making, management skills, personal development, and a family development approach. Home Economics programming has an educative mission to provide resources to families, as families continue to be the primary source of support and nurturing for individuals in a rapidly changing society. Young people have the opportunity to explore issues and experience hands-on learning related to daily living.



Home Economics education has an educative and preventative mission to provide resources to families, as families continue to be the primary source of support and nurturing for individuals in our rapidly changing society.

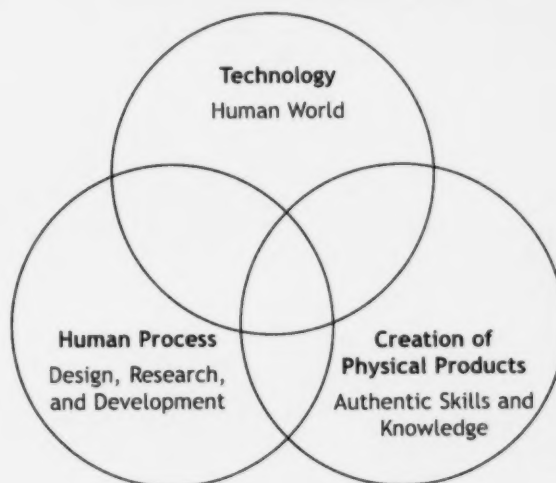
Industrial Arts education programming provides lifelong learning patterns for living/working effectively in a changing technological environment. Technology can be defined as "human innovation in action" (Technology for All Americans, 1996, 16). Participants in Industrial Arts programming work actively with technological tools, materials, and processes to transform real-life concepts and ideas into goods and services. Problems, ideas, and concepts are explored from the research/investigation stage to product development, and ultimately to the final testing and assessment/evaluation. Because of the changing nature of society and the workplace, the skills and knowledge developed in Industrial Arts education are relevant to many other areas of life as one assesses the societal/cultural impacts of technology.



... the skills and knowledge developed in Industrial Arts education are relevant to many other areas of life as one assesses the societal/cultural impacts of technology.



**Home Economics/Industrial Arts Education
Specializes in Hands-On Learning Experiences**

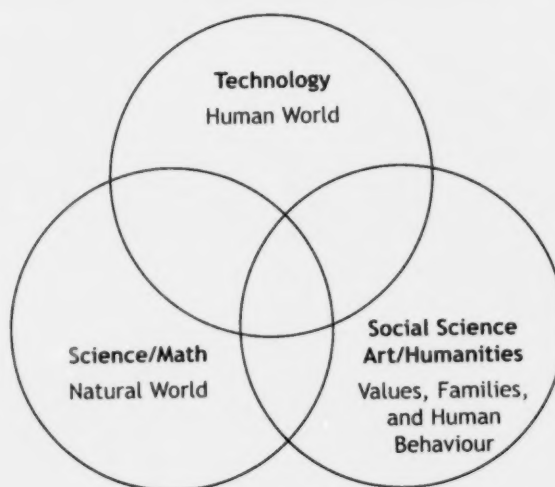


Home Economics/
Industrial Arts
courses integrate a
blend of knowledge
in the physical and
biological sciences,
social sciences,
and the arts and
humanities . . .

Home Economics/Industrial Arts programming builds on connections that already exist and help to create relevance to learning life skills. Home Economics/Industrial Arts courses integrate a blend of knowledge in the physical and biological sciences, social sciences, and the arts and humanities with participatory activities that incorporate the four modalities of learning (kinaesthetic, tactile, visual, and auditory). Males and females experience a new depth of understanding due to the integration of knowledge and skills in a practical setting. The integration of cross-curricular skills, knowledge, and resources is essential in the successful learning and development of the emerging adult.



Home Economics/Industrial Arts Relationship to Areas of Knowledge



... challenging, stimulating, and fun activities that tantalize the thought process, raise the oxygen level in the brain, and cause people to want to be there.

Students are encouraged to strive for personal excellence that will enhance the quality of life for themselves and other individuals in their lives.

Education needs to be about developing powers of thinking. Home Economics/Industrial Arts provides students the opportunity to work independently and co-operatively with others through a process as they apply decision-making, problem-solving, and critical-thinking skills to problems and/or issues. Additional skills such as inferring, synthesizing, analyzing, and evaluating, as well as a complete range of communication skills including listening, speaking, representing, viewing, and of course reading and writing are part of Home Economics/Industrial Arts classrooms. These enriched learning environments offer challenging, stimulating, and fun activities that tantalize the thought process, raise the oxygen level in the brain, and cause people to want to be there.

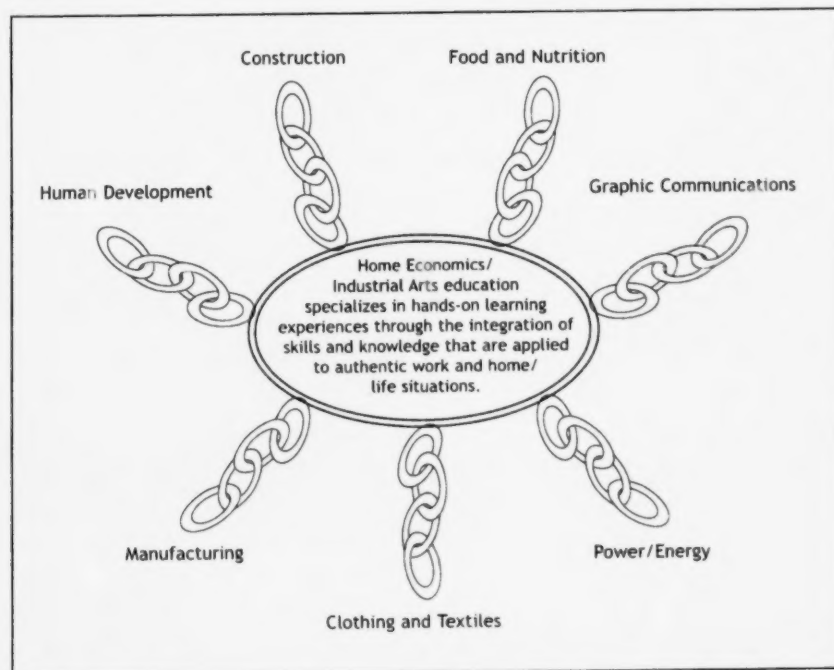
Life is not a spectator sport; it is an exercise in active involvement, and education should reflect that active involvement (Tileston, 2000). Home Economics/Industrial Arts programming provides a variety of instructional strategies/methods for students to acquire knowledge with an emphasis on discovery, inquiry, and experiential opportunities. The curricula incorporate a variety of student activities including brainstorming, case studies, demonstrations,

discussions, interviews, presentations, tutoring, role playing, simulation, and above all hands-on interactive activities. An emphasis on positive attitudes towards safe work habits for students themselves and the well-being of others is a priority in these classrooms. Students are encouraged to strive for personal excellence that will enhance the quality of life for themselves and other individuals in their lives.

Home Economics/Industrial Arts programs provide students the opportunity to attain knowledge, skills, values, attitudes, and behaviours for a smooth transition to adult roles in the family, community, world of work, and higher education.

The variety of programming in Home Economics/Industrial Arts plays a significant role in developing career awareness and a framework of skills that can be applied in a range of occupations to support society's needs in the workplace. Education is more than a key to a good job, it also contributes to a full, well-balanced life. *The Blueprint for Life/Work Designs* (2000) states that there are knowledge, skills, and attitudes that learners must attain in order to effectively manage their life/work-building processes. Home Economics/Industrial Arts programming provide students the opportunity to attain knowledge, skills, values, attitudes, and behaviours for a smooth transition to adult roles in the family, community, world of work, and higher education.

Employability Skills, Essential Skills, and Career Development Skills



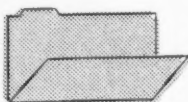
The new realities of today's workplaces and workers have changed our perception of the concept of career. Career development is complex and multi-dimensional, involving growing through life and work—an interweaving of learning, experiencing, living, working, changing, and identifying and discovering pathways (National Life/Work Centre, 2000). Both students and adults are confronted with the rapidly changing workplace. These changes include the redistribution of available jobs and alternative work formats (such as job sharing, part time, self-employment); a more rapid rate of technological and other changes that create the need for frequent life/work decisions; and increased requirements for workers to have interpersonal, problem-solving, thinking, learning, and creative skills (National Life/Work Centre, 2000).

The skills and knowledge developed in Home Economics/Industrial Arts programs are useful to students not only in their personal lives, but also in securing and holding employment in business, industry, and the professions. The following chart summarizes the skills, attitudes, and behaviours for life, learning, and work that are supported by Home Economics/Industrial Arts education, The Conference Board of Canada (CBC), Human Resources Development Canada (HRDC) and The National Life/Work Centre.

Career development is about growing through life and work: about learning, experiencing, living, working, and changing; about creating and discovering pathways through one's life and work (National Life/Work Centre, 2000). Home Economics/Industrial Arts programming aspires to increase the resourcefulness of young people and help them to live satisfying lives.

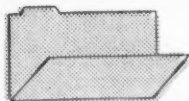
Employability Skills, Essential Skills, and Career Development Skills				
NLWC—The National Life/Work Centre; CBC—Conference Board of Canada; HRDC—Human Resources Development Canada				
Skills, Attitudes, and Behaviours for Life, Learning, and Work	Blueprint for Life/Work NLWC	Employability Skills CBC	Essential Skills HRDC	Home Economics and Industrial Arts Education
Reading Text	✓	✓	✓	✓
Document Use	✓	✓	✓	✓
Writing	✓	✓	✓	✓
Numeracy (Math)	✓	✓	✓	✓
Working with Others	✓	✓	✓	✓
Cooperative and Social Skills				✓
Conflict Resolution/Communication				✓
Continuous Learning	✓	✓	✓	✓
Oral Communication	✓	✓	✓	✓
Computer Use	✓	✓	✓	✓
Thinking Skills	✓	✓	✓	✓
Problem Solving	✓	✓	✓	✓
Decision Making	✓	✓	✓	✓
Job Task Planning	✓		✓	✓
Job Task Organization	✓		✓	✓
Significant Use of Memory			✓	✓
Finding Information	✓	✓	✓	✓
Analytical Skills				✓
Self-Esteem and Confidence	✓	✓		✓
Honesty, Integrity, and Personal Ethics		✓		✓
Initiative, Energy, Persistence to Get the Job Done	✓	✓		✓
Accountability for Actions Taken	✓	✓		✓
Positive Attitude Toward Change	✓	✓		✓
Recognition of and Respect for People's Diversity and Differences	✓	✓		✓
Ability to Identify and Suggest New Ideas to Get the Job Done — Creativity	✓	✓		✓
Ability to Set Goals and Priorities in Work (School) and Personal Life	✓	✓		✓
Ability to Plan and Manage Time, Money, and Other Resources to Achieve Goals	✓	✓		✓
Positive Attitude Toward Learning, Growth, and Personal Health	✓			✓
Solve Technological Problems and Develop Technical Skills				✓
Creativity and Leisure Skills				✓
Research Skills	✓			✓
Scientific Skills				✓
Integration of Skills, Knowledge, and Resources from Other Disciplines				✓
Promote Safety				✓
Career Opportunities Available and Their Associated Lifestyle	✓			✓





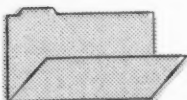
The National Life/Work Centre

The Blueprint for Life/Work Designs is part of a new and unprecedented partnership between a coalition of Canadian agencies lead by the National Life/Work Centre, Human Resources Development Canada, the Canadian Career Information Partnership, and the NOICC/SOICC network in the United States. This document grew out of this understanding of the need for a coherent conceptual framework for career development in Canada (National Life/Work Centre, *The Blueprint for Life/Work Designs*, 2000). *The Blueprint for Life/Work Designs* is available through the Manitoba Coordinator, Manitoba Education and Youth. The findings for the chart were analyzed from the competencies and indicators by level and learning stage found in Appendix A of *The Blueprint for Life/Work Designs*.



Conference Board of Canada

The Essential Skills and Employability Skills summaries in the chart on the previous page are taken from the *Make the Skills Connection Brochure*, <<http://www.conferenceboard.ca/nbec/research.htm>> The Conference Board of Canada (CBC) is the premier independent applied research institute in the country. The CBC develops and exchanges knowledge about emerging economic and social trends, key public policy issues, and organization strategies and practices. The CBC Employability Skills profile checklist outlines the foundational skills, attitudes, behaviours, and knowledge that are essential to making and keeping oneself employable and progressing on a job.



Human Resources Development Canada

The mission of Human Resources Development Canada (HRDC) is to enable Canadians to participate fully in the workplace and the community. HRDC's Essential Skills Research project formulated the list of skills indicated in the chart. These skills are used in all occupations and in a broad range of daily activities. Interviews with more than 3,000 working people across Canada and the private sector were the resource base for this project. Skilled, knowledgeable, and resourceful individuals are essential for a strong nation and national economy.

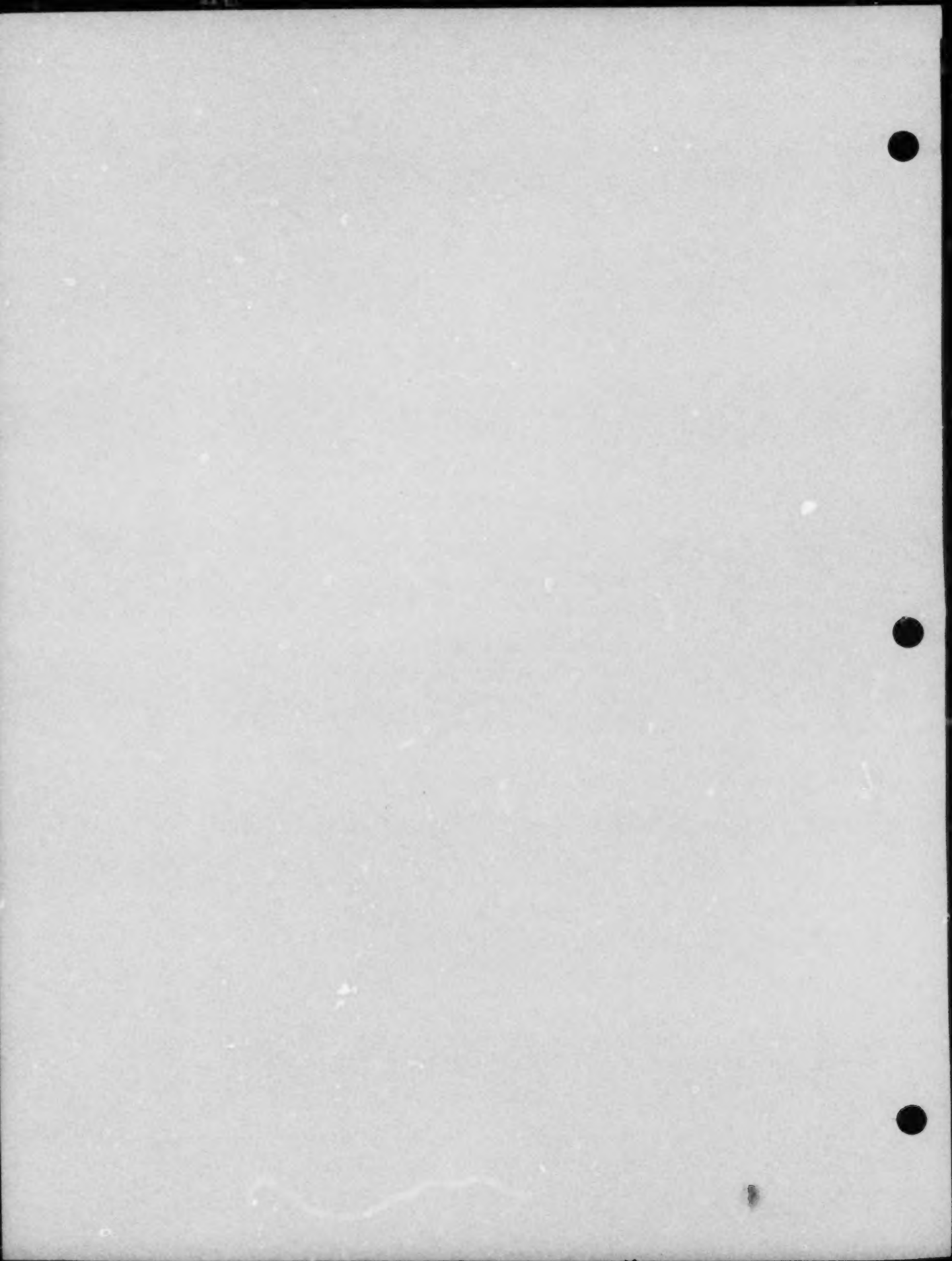




Linking Middle Years to Learning

- **Characteristics of the Middle Years Learner and Instructional Implications**
- **Fundamentals of the Home Economics/
Industrial Arts Support Document**





LINKING MIDDLE YEARS TO LEARNING

In the 1950s and 1960s, Middle Years advocates argued that junior high schools failed to realize their vision because they imitated the practices of senior high schools. These included an orientation to subjects, departmentalized teaching, a heavy reliance on lecture and didactic instruction, and competitive sports programs. It was believed that the declining academic achievement among adolescents was due to the mismatch between the developmental needs of these students and the educational environment (MacIver, 1989).

The belief is that Middle Years programming benefits students because of three factors: organizational structure, scope and sequence of curricula, and methods of instruction. The school experience for early adolescents includes a personal environment created by counselling and teacher advisor programming. The Middle Years core curricula are taught in thematic units by a team of interdisciplinary teachers who identify concepts of significance and then build extended units around those topics. Careful and co-operative scheduling accommodates exploratory curricula such as Industrial Arts and Home Economics.

- 📖 Exploratory programs allow students to explore their aptitudes, interests, and special talents as well as to develop an accurate and positive self-concept (National Association of Secondary School Principals Council on Middle Level Education, 1985).
- 📖 An activity-centred/problem-based curriculum and instructional activities provide relevance for students and a vehicle for integration. Young adolescents need more opportunities for exploration (Keefe, Valentine, Clark, and Irvin, 1993).
- 📖 Exploratory courses are a "signature" practice necessary for Middle Years schools that are dedicated to meeting the needs of young adolescents (Epstein and MacIver, 1990).

Fundamentals of the Home Economics/Industrial Arts Support Document

This section of the document will apply and integrate culture and climate, ways of learning, instructional approaches, and assessment tools/methods for each of the curriculum areas.



A variety of instructional strategies enables students to think critically about relationships between ideas and curriculum content. The organizational structures, techniques, and practices of Middle Years education facilitate student growth and turn classrooms into communities of learners.

Early research emphasized elementary and high school education. In a little over three decades the face of education has been remade and Middle Years education has been given a long overdue identity. While research prior to 1990 focused on how to meet student needs, the current decade is documenting the effectiveness of these programs. The National Middle School Association (www.nmsa.org) is actively involved in disseminating research information to educators.

Characteristics of the Middle Years Learner and Instructional Implications

Development Characteristics of Middle Years Learners	Instructional Implications
<i>Physical Characteristics</i> include rapid growth, sexual maturation, hormonal changes; body image is important	➤ Keep students actively involved in their learning. ➤ Provide opportunity for movement. ➤ Vary the activity several times in each one-hour period.
<i>Emotional Characteristics</i> include mood swings, critical of self, fragile self-concept, focus on self, seek attention but do not like to be singled out; strong bond to same-sex friends; forming cultural identities	➤ Provide a "safe" learning environment that affirms diversity and encourages risk-taking. ➤ Provide positive opportunities for releasing emotions. ➤ Provide opportunities for students to experience success. ➤ Provide validation for diverse cultural backgrounds. ➤ Avoid sarcasm and judgemental statements. ➤ Encourage acceptable work, behaviour, efforts, attitudes, and achievements by giving immediate and relevant feedback.

(continued)



Development Characteristics of Middle Years Learners	Instructional Implications
<i>Moral and Ethical Characteristics</i> include exhibiting feelings about fairness and values in others but perhaps not in self; unable to maintain an objective perspective; often show concern for others in need or pain	➤ Incorporate opportunities to explore and develop values. ➤ Provide anti-racist and anti-sexist learning environments and experiences. ➤ Provide opportunities for students to become objective, reflective, and critical thinkers. ➤ Expect students to accept responsibility for their actions and attitudes. ➤ Encourage cultural sensitivity and acceptance of varied viewpoints.
<i>Social Characteristics</i> allegiance to peers takes precedence over family and other adults; peers and media are sources of standards and views; become interested in opposite sex; desire independence but fearful of taking risks alone	➤ Provide for meaningful interaction with peers and adults as they learn. ➤ Provide opportunities for students to "show off" in productive and positive ways. ➤ Encourage and model positive and constructive ways of resolving interpersonal conflict. ➤ Keep in contact with parents and involve them when possible.
<i>Intellectual Characteristics</i> moving from being concrete to abstract thinkers; curious; prefer active over passive learning activities; prefer interaction with peers during learning; need learning to be relevant	➤ Use concrete examples to develop abstract concepts. ➤ Set short-term goals. ➤ Encourage self-expression and critical thinking. ➤ Provide active rather than passive learning opportunities. ➤ Provide for a variety of peer and group learning interactions. ➤ Recognize and address the varied levels of ability and learning styles.

Characteristics of the Middle Years Learner and Instructional Implications: Reprinted, with permission, from Saskatchewan Education. *Social Studies: An Information Bulletin for the Renewed Middle Level Curricula (Grade 7-9)*. Copyright © 1999 by Saskatchewan Education.



Impacts on Learning

Classroom Climate and Learning

The classroom climate should be stimulating and inviting. Ways to create a stimulating learning environment include the following (adapted from Manitoba Education and Training, *Senior 1 English Language Arts: A Foundation for Implementation*, 1997, Overview 9):

- Design workstation/seating arrangements that reflect a student-centered philosophy.
- Maintain a print-rich environment that speaks of a lively connection between the Home Economics/Industrial Arts classroom and the larger world.
- Equip the classroom with a radio/cassette/cd player to provide background music. The latest brain research indicates that music has a calming effect on students.
- Provide access to a television, videocassette recorder, and emerging technology to enhance learning.
- Provide access to a video camera to record student demonstrations, presentations, and role playing. Tapes can be used for student/teacher assessment and/or reflection.
- Display student-designed posters and other work that celebrates student accomplishment.
- Involve students in classroom design.

Motivation, Achievement, and Learning

Student motivation, achievement, and learning can be greatly affected by the classroom environment. Motivation is defined as the focus of energy caused by a desire or need. We are faced with creating a classroom that enables students to channel their energy towards learning.

The chart on the following page identifies practices that foster motivation in the Home Economics/Industrial Arts classroom to enable student success. This chart is adapted from Manitoba Education and Training, *Senior 1 English Language Arts: A Foundation for Implementation*, 1997, Overview 7/8.



Fostering Motivation in the Home Economics/Industrial Arts Classroom	
Ways to Foster Expectations of Success	Promising Practices
Help students to develop a sense of self-efficacy.	Teachers foster a sense of self-efficacy first by teaching students that they can learn how to learn. Students who experience difficulty often view the learning process as mysterious and outside of their control. They believe that others who succeed in school do so entirely because of natural, superior abilities. It is highly motivating for these students to discover that they, too, can learn and apply the strategies that successful students use when learning. Second, teachers foster student self-efficacy by communicating to the student that the teacher believes they can succeed and will provide the necessary support to ensure that learning takes place.
Help students to learn about and monitor their own learning processes.	Utilize self-assessment to help students understand how they learn, learn more efficiently, and become more adept at transferring what they know to other situations.
Assign tasks of appropriate difficulty, communicating assessment criteria clearly and ensuring that students have clear instruction, modelling, and practice so that they can complete tasks successfully.	A methodology for thorough instructional approaches is found on pages 49 to 54 of this document.
Help students to set specific and realistic personal goals and to learn from situations where they do not attain their goals, and celebrate student achievements.	Learning is enhanced when specific criteria and performance standards are incorporated into one's program.
Offer choices.	Intrinsic motivation is closely tied to students' self-selection of print resources, topics, activities, and projects. Self-selection allows students to build their learning on the foundation of their personal interests and enthusiasm.
Set worthwhile learning/skills objectives.	Meaningful learning activities/projects support transferable skills/knowledge.
Ensure that knowledge and skill experiences are interactive.	Encourage students to share their knowledge and skills with each other to foster motivation for learning.

Note: Sample learning outcomes are provided on pages 70 to 75.



Talking and Learning

Dr. David Sousa, a leading researcher/author in *How the Brain Learns*, indicates that we are in the middle of a brain development revolution that has implications for classroom culture and climate. Our understanding of how the brain functions has changed substantially. It has been scientifically determined that the frontal lobe (problem-solving part of the brain) needs to be activated or learning will not be retained. Talking has been identified as a stimulant for the frontal lobe. The implication for the classroom and its climate is that learners must talk to aid retention. Classroom settings should encourage student discussion. Home Economics/Industrial Arts classrooms have a variety of workstations that allow for student interaction.

Emotional/Physical Security and Learning

Another implication for classroom climate identified by Sousa is that students must feel emotionally and physically secure before they can learn. Administrators and classroom teachers have taken an active role in supporting emotionally safe classrooms through the application of school or divisional interventions that deal with harassment, bullying, etc.

The secondary part of this learning equation is that classrooms must be physically safe places in order for students to learn. The number of participants should be determined by the programming nature and must not compromise safety. Home Economics/Industrial Arts facilities with specialized equipment should be maintained to acceptable health and safety standards. Administrators and classroom teachers must be aware of accident/injury liability and negligence statements found in *The Public Schools Act* as well as in the *Administrative Handbook, School Administration: Negligence and Liability* published by Manitoba Education and Training.

The Public Schools Act: accident liability documentation is found in sections 86-90. Section 87 of the Act outlines the claim to negligence in regard to defective or dangerous apparatus.

Section 87. Defective apparatus

Where the bodily injury or death of a pupil referred to in section 86 is caused by defective or dangerous apparatus supplied by the school division or school district for the use of the pupil, the school division or school district and its employees and agents and the trustees shall be deemed to have been not guilty of negligence unless it is shown that one or more of the trustees of the school board or one or more of the employees or agents thereof had knowledge of the defect in or the dangerous nature of the apparatus and failed to remedy or replace the apparatus within a reasonable time after acquiring the knowledge.

Below is a segment from the *Administration Handbook* (March 2000), which includes a three-page section of reference on negligence and liability.

It is generally assumed, in law, that teachers and others placed in charge of students have a duty to be responsible for the safety and welfare of those students during school hours and also after school hours during any school-sponsored activities on or off school premises. Failure to act reasonably under the circumstances, if this failure causes injury or death to a student, can result in a possible action in negligence.

It is generally recognized that four conditions must exist for a negligence suit to be successful:

1. The person alleged to be negligent must have a legal duty to maintain a standard of conduct that will protect others against hazards.
2. This person must fail to conform to a reasonable standard of conduct in connection with this duty. (The accepted standard is that of a prudent parent of a large family. However at least one recent court decision made a clear departure from that standard, and adopted a higher "professional" standard of care where a teacher needs specialized knowledge, training and/or experience in order to carry out his/her duties, such as gymnastics instruction in a high school setting).
3. The person or persons to whom this obligation is owed must suffer a genuine loss or injury (which could be property loss or damage, or physical or psychological injury, or death).
4. There must be a definite casual connection between the first person's failure to maintain a proper standard of conduct and the loss or injury suffered by the second person.

(continued)



Where teachers and other school officials are concerned, there is little difficulty in proving that a duty of care is owed to students. In any school activity, school personnel are generally assumed to be responsible, within responsible limits, for the welfare of students.

The fact that a mishap takes place does not automatically mean that there has been negligence. Genuine accidents do take place, and while they are unfortunate, no one can be blamed for them. Only if a court decides that a reasonably prudent person in the teacher's situation would have anticipated the mishap and would have acted to prevent it might the teacher be found negligent.

If students are to be placed in situations where the potential for injury exists, appropriate skill training and safety briefing must take place, and safety regulations conscientiously enforced. In addition, school officials are legally obligated to see that any facilities and equipment used are in safe condition. Particular caution should be exercised with regard to physical education equipment, playground equipment, vocational/industrial lab, etc.

Administrators and teachers are encouraged to advocate for emotionally and physically safe classrooms that support learning.

Cultural Diversity and Learning

Manitoba is a mosaic of people who have a variety of cultures, languages, religions, and other characteristics. Since society is composed of a vast array of individuals, the educational system must consider the needs of the diverse people. Manitoba's diverse student population is seen in the various multiracial, multi-ethnic, and multicultural classrooms. These aspects of human diversity should be recognized, accepted, and celebrated to create learning environments that prepare all students for participation in society, provide students with opportunities for cultural and linguistic development, and encourage intercultural understanding and harmony (Manitoba Education and Training, *A Foundation for Excellence*, 1995).

Multicultural diversity is a key element of Manitoban identity. Teachers must examine their own multicultural knowledge base and become aware of the way they read behaviour through their own cultural filters. They need to explore the intellectual work of groups of which they are not members, both for its implications for the curriculum and to be able to understand how people make sense of everyday life.

The urban Aboriginal population in Manitoba is expected to exceed 192,000 by the year 2016 (Graham, 2002). Teachers who work with Aboriginal students need a sound knowledge of the general culture and traditional ways of their students' communities. Refer to Manitoba Education and Training, *Success for All Learners* (1996) 3.15.

Multicultural education is the process that honours the multicultural nature of the society in which we live. Multicultural education is not a program (Bohn and Sletter, 2000). The goal of multicultural education is to develop students' ability to function competently within multiple cultures (Hall and Wortis, 1990). Students need to learn to respect and to deal with others whose attitudes, values, and abilities may differ greatly from their own.

Ways of Learning

This document applies instructional methods that consider various ways of learning and demonstrating learning. Not all students learn the same way due to individual experiences, strengths, and challenges. There are various ways to describe the different ways of learning. Three models for describing student differences will be applied: learning styles, thinking styles, and multiple intelligences. Summaries of the three models are provided below (Manitoba Education and Training, *Success for All Learners*, 1996, 4.4-4.6).

Learning Styles

The model developed by Ken Dunn and Rita Dunn of St. John's University, New York, classifies students according to their learning styles:

- **Auditory learners** absorb spoken material easily and are likely to ask for information rather than read printed instructions.
- **Visual learners** learn best from information that they read or see.
- **Tactile learners** learn best by handling materials, writing, drawing, and being involved in concrete experiences.
- **Kinaesthetic learners** learn best by moving and doing, by taking part in activities and have direct relevance to their lives.

Dunn and Dunn believe that most people have two highly developed learning styles, and that within a class of 30 students, 22 will be balanced in their ability to take in information in a variety of ways.



Thinking Styles

Anthony Gregorc (1982) of the University of Connecticut has developed a theory of thinking styles based on two variables: the way we view the world (do we see things concretely or abstractly?) and the way we order the world (in sequential or random order). In Gregorc's framework, these two variables combine to describe four thinking styles:

- **Concrete sequential thinkers** are based in the physical world they can detect through their senses. They notice and recall details easily, and remember facts, formulas, and rules with ease. They learn well through "hands-on" experiences.
- **Concrete random thinkers** are experimenters—divergent thinkers, willing to take the intuitive leaps necessary for creative thought. They have a strong need to find alternatives and to do things in their own way.
- **Abstract sequential thinkers** love the world of theory and abstract thought. Their thinking processes are logical, rational, and intellectual. They prefer to work alone rather than in groups.
- **Abstract random thinkers** organize information through reflection, and thrive in unstructured, people-oriented environments. They live in the world of feelings and emotions, and learn best when information is personalized.

Multiple Intelligences

The theory of multiple intelligences is a cognitive model developed by Harvard psychologist Howard Gardner in the 1980s. Gardner's theory is that each of the following seven intelligences has an evolutionary history, its own symbolic system, and a separate locus in the human brain:

- **Verbal/linguistic intelligence** is responsible for the production of language and all the complex possibilities that follow: storytelling, abstract reasoning, symbolic thinking, conceptual patterning, and, of course, the written word.

Multiple Intelligences: From *Seven Ways of Knowing: Teaching for Multiple Intelligences* by David Lazear. © 1991 by IRI/Skylight Training and Publishing, Inc., Palatine, IL. Reprinted with permission.



- **Logical/mathematical intelligence** is most often associated with “scientific thinking,” deductive reasoning, and problem solving. This intelligence involves the capacity to recognize patterns, to work with abstract symbols such as numbers and geometric shapes, and to see connections between separate pieces of information.
- **Visual/spatial intelligence** deals with the visual arts, navigation and map-making, architecture, and games such as chess. The key sensory base of this intelligence is sight, but also the ability to form mental images.
- **Body/kinaesthetic intelligence** is the ability to use the body to express emotion (as in dance and body language), to play a game, or to devise an invention. Individuals with high body/kinaesthetic intelligence thrive on hands-on experience; they “learn to do by doing.”
- **Musical/rhythmic intelligence** includes such capacities as the recognition and use of rhythmic and tonal patterns, and sensitivity to sounds from the environment, the human voice, and musical instruments. Many children learn the alphabet through this intelligence.
- **Interpersonal intelligence** involves the ability to communicate verbally and non-verbally, to work co-operatively in a group, and to observe the moods, temperament, and intentions of others. Individuals with high interpersonal intelligence are able to imagine and empathize with the experience of others.
- **Intrapersonal intelligence** involves knowledge of the self—of feelings, thinking processes, and spiritual realities. This intelligence involves our capacities for self-reflection, to experience wholeness and unity, to perceive higher states of consciousness, and to dream of and actualize the possible.

Gardner’s multiple intelligences theory proposes that each person has capabilities of varying degree in all seven intelligences, and that we perform most functions through a complex interaction of several intelligences. (Ongoing research may result in the identification of other intelligences.)

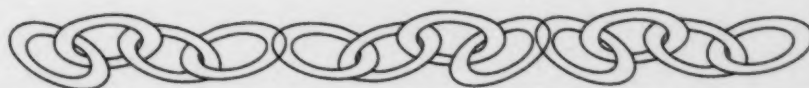






Home Economics/Industrial Arts Rationales and Website Resource Listings

- **Home Economics Education**
- **Industrial Arts Education**





HOME ECONOMICS/INDUSTRIAL ARTS RATIONALES AND WEBSITE RESOURCE LISTINGS

Home Economics Education

Clothing and Textiles

The Clothing and Textiles curriculum creates awareness of the role of clothing, textiles, and fashion in our daily lives. This curriculum area develops an increased knowledge of key theoretical concepts associated with the areas of clothing, textiles, and the fashion industry. Achievement and success is attained through the practical application of knowledge and skills as students participate in activities that allow them to express themselves through designing, producing, and evaluating finished textile projects.

Textile industries have a wide range of application in our society—in the home, workplace, and environment. The textile industry is made up of fiber and fabric producers. The largest percentage of the fiber produced goes to the fashion industry. The fashion industry includes anyone who is involved in the making or selling of garments and accessories. The fashion garment industry in Manitoba is a growing economy.

Winnipeg's garment industry represents about 10% of the Canadian garment industry.

The apparel industry is the second largest manufacturing industry in the province.

8000 Manitobans work in the garment industry.

Local, national, and international sales of garments made in Winnipeg exceed \$700 million each year.

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Costume Museum of Canada: <www.costumemuseum.com>

History of Fashion Museum Collections:

<www.library.kent.edu/branches/fashion/fashionhistory.html>

Museum for Textiles: <www.museumfortextiles.on.ca>

Textiles.org: <www.textiles.org>

Textile Web: <www.textileweb.com>

Canadian Industry Analysis:

<http://strategis.ic.gc.ca/sc_indps/sectors/engdoc/appa_hpg.html>

Canadian Apparel Magazine: <www.apparel.ca>

Manitoba Fashion Institute: <www.apparel-manitoba.org>

University of Manitoba—Clothing & Clothing:

<www.umanitoba.ca/faculties/human_ecology/clothing>

Fashion Net: <www.fashion.net>

Fashion Internet: <www.finy.com>

Fashion Planet: <www.fashion-planet.com>

Elle Magazine: <www.ellemag.com>

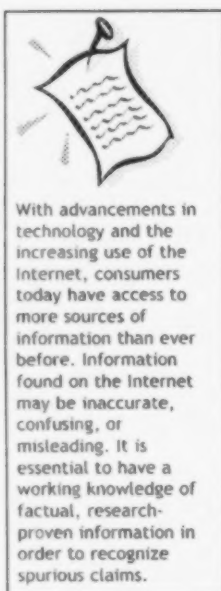
Flare Magazine: <www.flare.com>

The Fabric Link: <www.fabriclink.com>

Butterick Patterns: <www.butterick.com>

McCall Patterns: <www.mccall.com>

Simplicity Patterns: <www.simplicity.com>



Food and Nutrition

The Food and Nutrition curriculum is designed to teach about food and nutrition through theoretical and practical food experiences. A study of Food and Nutrition can expose students to accurate information and provide opportunities for students to gain competence in making informed reasoned choices. The learning outcomes develop skills, knowledge, and resources necessary for life. Students are provided with an opportunity to achieve success through learning activities that build self-image and increase self-confidence.

Many students may be responsible for meal preparation at home. Knowledge and understanding of basic food preparation and nutrition are important so that healthy food choices for individual and family well-being are made. The preparation of food, whether at school or at home, can be a creative, interesting, enjoyable, and rewarding experience. The skills and knowledge taught in this curriculum increases the resourcefulness of students, and helps them to develop self-reliance, independence, and positive social skills. Another benefit is the acquisition of basic life skills and knowledge that all students need.

Traditional food preparation skills are being lost in today's fast-paced lifestyles. The impact of eating highly refined, processed foods is affecting our short and long-term health. Much of the food consumed is fast foods, partly prepared foods, or food eaten away from home. Time constraints and the effects of advertising have dramatically changed the types of foods prepared and eaten. Contrary to advertising claims, the preparation of nutritious foods does not have to be time-consuming or difficult. Less preparation at home means less transfer and less reinforcement of food preparation skills. Students need the opportunity to learn and practise preparation techniques in the classroom.

The results of the *Food Habits of Canadians* research project, released in March 2001, reported that teenage males and females are not meeting their daily nutrient requirements. Teenagers are not consuming the minimum number of servings of food from the four food groups found in *Canada's Food Guide for Healthy Eating*.



- almost one-half of all teenage girls were not consuming the minimum number of servings from each of the four food groups
- 60% of female teens did not have the minimum number of servings of meats and alternates
- more than one-half of the females interviewed were not consuming the minimum number of milk products
- 40% of teen males are not consuming the minimum number of milk products
- one-half of female teens and more than a half of the male teens did not consume the minimum five servings of vegetables and fruit per day
- 30% of male teens did not consume the minimum servings from the grain products group of the *Food Guide*
- 40% of female teens did not consume the minimum servings from the grain products group of the *Food Guide*

Damage caused by poor nutrition is cumulative and often begins with poor food habits in childhood. Knowledge about nutrition is an important component of a healthy lifestyle. Two-thirds of Canadians surveyed in a study by the National Institute of Nutrition felt that nutrition is very or extremely important in choosing the food they eat. Four out of five Canadians believe that food and nutrition play a "great" role in maintaining or improving overall health. Food-related health problems are major health concerns in Canada. The top health concerns of Canadians are heart or circulatory health issues (28%), cancer (24%), nutrition and diet (24%), exercise (17%), weight (12%), and diabetes (8%). Nutrition programs must remain as an integral part of the education system to address these concerns that have been identified in the National Institute of Nutrition study as well as the *Food Habits of Canadians* research project.

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<www.hc-sc.gc.ca/english/food.htm>

Health Canada, Nutrition Program:

<www.hc-sc.gc.ca/hppb/nutrition>

Dietitians of Canada: <www.dietitians.ca>

Canadian Health Network: <www.canadian-health-network.ca>

Canadian Institute on Health Research:

<www.cihr.ca/welcome_e.shtml>

Health Canada Online: <www.hc-sc.gc.ca/english/index.html>

National Institute of Nutrition: <www.nin.ca>

Center for Science in the Public Interest: <www.cspinet.org>

Health Services Utilization and Research Commission:

<www.hsurc.sk.ca>

Nutrition Journals and Publications:

<www.nal.usda.gov/fnic/etext/000041.html>

Journal of Nutrition: <www.nutrition.org>

Nutrition, Food and Health Resources: <www.blonz.com>

Research Papers and Nutrition News: <www.medportal.com>

Nutrition News Focus: <www.nutritionnewsfocus.com>

Berkley Nutrition Services: <www.nutriquest.com>

Food and Nutrition Internet Index: <www.fnii.ifis.org>

Tuft's University Nutrition Navigator:

<www.navigator.tufts.edu/index.html>



With advancements in technology and the increasing use of the Internet, consumers today have access to more sources of information than ever before. Information found on the Internet may be inaccurate, confusing, or misleading. It is essential to have a working knowledge of factual, research-proven information in order to recognize spurious claims.



Human Development

The Family Studies/Human Development curriculum provides skills and knowledge in the areas of parenting, money management, relationships, and the well-being of individuals/families. Students have the opportunity to increase their knowledge as to how individuals/families function in society during different stages of the life cycle. Throughout the human life cycle, people need to be cared for and to care for themselves and others. Nurturing and care-giving skills are utilized along with knowledge of human growth and development to anticipate changing personal and family needs. The Vanier Institute of the Family reports that the majority of Canadians rate their families as a more important part of their lives than career or religion (1994).

The labour force participation rates of men are declining while the rates of women's participation have increased rapidly during past decades, and more than half of Canada's student population are in the labour market (Vanier Institute of the Family, 1994). In the majority of two-parent families, both parents are employed in the labour force. In Canada, approximately 69% of married women with young children are employed outside the home. Family structures are also more fluid as families are smaller, more couples choose not to have children, and there are more one-parent families (Vanier Institute of the Family, 2000). Many young people growing up in small or single-child families today no longer have experiences in caring for young children.

Balancing work and family responsibilities has become a major preoccupation for many people. Children and adolescents are assuming responsible roles within their own families at an early age. Students are faced with the changing make-up of their present family/families and making decisions about establishing their own future roles and relationship patterns. Young Canadians are experiencing more strain in their relationships with their parent(s) and with each other (King and Coles, 1992). There is a need to have young people gain a better understanding of how to communicate with, and relate to parents and peers, and techniques to manage stress in today's rapidly changing world.

These indicators highlight the importance of family studies education, which can provide students with an opportunity to

- gain an understanding of present family experience and improve their capacity as family members
- evaluate a variety of social circumstances such as declining incomes, alternate role arrangements, increasing globalization, the aging population, and their influence on family well-being
- develop values and expectations that will assist them in establishing Canada's future families
- develop technical, communicative, and critical thinking skills that foster a productive work and family life

Home Economics is a field of study that specializes in the ways families can improve their quality of life. The Family Studies/Human Development courses offer a preventative, proactive, and practical approach to supporting families.

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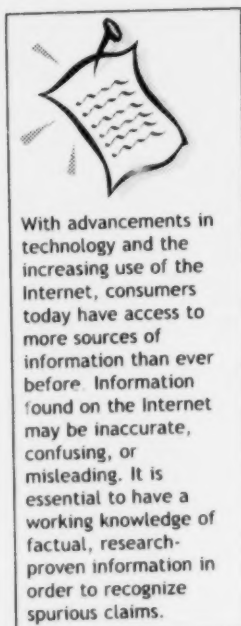
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Canadian Services for Children:
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American Association for Marriage and Family Therapy:
<www.aamft.org>
Vanier Institute for the Family: <www.vifamily.ca>
Family Works: <www.urbanext.uiuc.edu/familyworks>
Parents Helping Parents: <www.php.com>
The Whole Family Center: <www.wholefamily.com>
Families and Work Institute: <www.familiesandwork.org>
National Foundation for Family Research & Education:
<www.nffre.org>
Center for Families Work and Well-Being:
<www.worklifecanada.ca>
Parenting Resource: <www.parentsoup.com>
Parents Place: <www.parentspace.com>
Parenthood: <www.parenthood.com/>
Principles of Parenting:
<www.humsci.auburn.edu/parent/index.html>
National Parent Information Network: <<http://npin.org/>>
Today's Parent Magazine: <www.todaysparent.com/>
Childbirth: <www.childbirth.org>
On line Birth Center: <www.moonlily.com/obc>
Baby Center: <www.babycenter.com>
Child Care Parent Provider Information Network:
<www.childcare-ppin.com>
Canadian Day Care Registry: <www.canadiandaycare.com>
National Youth in Care Network: <www.youthincare.ca>
National Adoption Center: <www.adopt.org>
National Center for Missing and Exploited Children:
<www.missingkids.org>

Fathering Magazine: <www.fathermag.com>

Fathers Forum: <www.fathersforum.com>

Motherheart: <www.motherheart.org>

Parenting the Preschooler: <www.uwex.edu/ces/flp/pp/index.html>

National Center for Infants, Toddlers and Families:
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<www.personal.psu.edu/faculty/n/x/nxd10/adolesce.htm>

Teen Information: Go Ask Alice!:
<www.goaskalice.columbia.edu/index.html>

Kids Source on Line: <www.kidsource.com>

National Council on Aging: <www.ncoa.org>

Association of Retired Persons: <www.aarp.org>

Resource for Aging and Divorce Issues: <www.flyingsolo.com>



Industrial Arts Education

Graphic Communications

The Graphic Communications technology curriculum is based on the development of knowledge, skills, and attitudes in drafting and graphic arts. Drafting offers a skill set that allows students to communicate ideas and designs through technical drawings. Graphic arts provides opportunities for students to develop principles, techniques, and processes relating to imaging technology. This programming explores current and innovative practices in the industry, and provides an understanding of graphic arts' relationship to self, people, careers, consumerism, industry, economics, and technology.

Technical drawing has played an important part in human progress and is the oldest type of written expression. A word is an abstract symbol representing a thing or an idea, but a picture represents the way an object appears in real life. Technical drawings are essential to constructing everything in society from the computer on a desk to the house in which a person lives.

Design and the creative process are viewed as integral to graphic communication technology. Design is creative problem solving which begins with a specific human need and results in a product or solution that addresses that need. Visualization of design can take many forms, from sketches to computer animation, and can range from highly creative to highly technical. There is an increasing demand for aesthetic quality in advertising and publications. This is being driven by advancements in computer and communications technology.

Graphic communications technology affects all aspects of our lives. From work to leisure, it extends our ability to communicate and is an important part of being technologically literate. The knowledge, skills, and attitudes attained provide opportunities for students to move into employment in one of the many design and drafting areas, and gain personal and life skills.



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Graphic Arts Education Research Foundation:
<www.npes.org/gaerf/home.html>

Graphic Com Central: <<http://teched.vt.edu/gcc/>>

Printing Industries Association Southern California:
<www.piasc.org>

Graphic Arts Information Network: <www.gain.org>



With advancements in technology and the increasing use of the Internet, consumers today have access to more sources of information than ever before. Information found on the Internet may be inaccurate, confusing, or misleading. It is essential to have a working knowledge of factual, research-proven information in order to recognize spurious claims.



Power/Energy

The Power and Energy curriculum develops knowledge, skills, and attitudes in electronics/electricity/power mechanics and related systems and subsystems. Programming allows students flexibility to exercise time management, quality control, and teamwork, and provides theories and concepts associated with the efficient use of resources to move goods, materials, electricity, and people. The knowledge and skills developed include, but are not limited to, the areas of power mechanics, energy sources, and power conversion. Students explore the language of industry and gain an understanding of its relationships to self, people, careers, consumerism, industry, economics, and technology.

Electricity and electronic devices are at the core of a wide variety of specialized technologies that have been developing over several decades. An understanding of electrical and electronics theory and applications enhances the student's ability to manage new technologies as they emerge. The employment opportunities vary from appliance, wire, and cable sectors to computer-related areas.

Power mechanics encompasses the resources, processes, application, and technological impacts of transportation systems on society. An understanding of today's power, energy, and transportation systems is needed by all students who are interested in working in these areas at home or on the job.

There has been a substantial development in high-tech industry which encompasses electricity/electronics and power mechanics. Concern for the environment has enabled the rapid development of technology in these sectors. Research and development in these industries are at their all-time high and will continue to be in the future. Expansion of the industry and technological change will result in a shortage of qualified workers in these technology-related industries.

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Websites

Electronics Industry Market Research and Knowledge Network:
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Power Designers—Electrical Engineering Design Solutions:
<www.powerdesigners.com>

Robotics, Control and Electronics Technology:
<www.totalrobots.com>

Lynx motion: robotics: <www.lynxmotion.com>

Ohms Law: electronics and robotics: <www.ohmslaw.com>

Natural Resources Canada: Energuide:
<<http://energuide.nrcan.gc.ca/>>

ShopBot: The Work Shop RoBot: <www.shopbottools.com>

Home Power Magazine: <www.homepower.com>



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Manufacturing

Manufacturing is the transformation of materials into products to meet human needs and wants. In the manufacturing process, natural and recycled resources such as wood, metal, and plastic are transformed into organized and useful products. A fundamental aspect of these programs is adding value to raw materials.

Woodwork, metalwork, and plastics courses provide students with opportunities to acquire knowledge, skills, and attitudes needed to plan, design, build, and evaluate projects using instruments, tools, equipment, and machinery related to these materials. These courses also help students understand the role of manufacturing in our economy and its relationship to other economic sectors. Students also study the impact the manufacturing process has on people, society, and the environment.

In today's global economy, manufacturing is the foundation of a nation's wealth and power. The fabricated materials sector of the Canadian economy is characterized by a large number of small entrepreneurial businesses that supply the construction and manufacturing industries. Industry is investing in leading edge technology and is hiring highly trained and talented people to manage and operate this technology effectively and efficiently. These high-tech industries depend on skilled labour in the design, manufacturing, marketing, and servicing of products.

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Repp, V. *Metalwork Technology and Practice*. Peoria, IL: Glencoe-McGraw Hill, 1994.





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Websites

Woodworkers Journal: <www.woodworkersjournal.com>

Fine woodworking magazine on line:

<www.taunton.com/finewoodworking/index.asp>

Wood Web: <www.woodweb.com>

Wood Net: <www.woodnet.net/main/woodwork.html>

Wood Information Services: <www.woodmagazine.com>

Top Ten Woodworking Links:

<www.hobbymall.com/woodworking/woodlink.html>

Woodworking Tips: <www.WoodworkingTips.com>

101 Woodworking Tips and Techniques:

<www.WoodworkingTips.com/woodtips>

Canadian Plastics Products Industry:

<<http://strategis.ic.gc.ca/SSG/pl01279e.html>>

Plastic Sheeting in Canada:

<<http://strategis.ic.gc.ca/SSG/gi16311e.html>>

Canadian Plastics Industry Association of Canada:

<www.cpia.ca/staticcontent/staticpages/index.html>

Society of Plastics Engineers: <www.4spe.org>

Society of the Plastics Industry: <www.plasticsindustry.org>

Polymers Dot Com: <www.plastics.com>

Plastics and Rubber Industries Home Base: <www.polysort.com>

EMetalworking.com: <www.ematalworking.com>

Precision Metal Forming Association: <www.metalforming.com>

Metal Working Industry: <www.metalworkingindustry.com>

Modern Machine Shop Online: <www.mmsonline.com>

American Welding Society: <www.aws.org>

Welding and Joining Information Network:

<www.ewi.org/resources>

On line metals: <www.onlinemetals.com>

Welding-Engineers.com: <www.welding-engineer.com/links.html>

Welding.com: <www.welding.com>

Weldsite.com: <www.weldsite.com>

Society of Manufacturing Engineers: <www.sme.org>



Industry Link: <www.industrylink.com>

Institute of Industrial Engineers: <www.iienet.org>

International Manufacturing Technology Show: <www.imts.org>

Manufacturers Alliance: <www.mfrall.com>

Technical Books for Industry: <www.industrialpress.com>



Construction

The Construction curriculum provides knowledge and skills within approximately twenty trade areas that comprise the construction industry. Through construction courses, students learn about the tools, equipment, and processes required to design, construct, and maintain a variety of structures. Construction technology programming integrates new developments and practices related to a product, system, process, or service. The development of new practices and products involves the identification of a problem that leads towards a solution that meets the intended want or need. There is never one answer and all solutions involve trade-off and risk. The problem-solving process involves a logical or rational process similar to a scientific method, but is different in purpose. The problem-solving method is to technology (invention/innovation) what the scientific method is to science (discovery).

In recent years, dramatic changes have occurred in the way buildings and other products have been designed and built due to the ability of the industry to simulate and evaluate designs with extreme accuracy. Construction technologies are used to build structures or objects to provide protection from the elements, to make work easier, and to make life more enjoyable. Today, our social and economic well-being is closely linked to our ability to use materials for the construction or maintenance of products.

Residential, commercial, industrial, or recreational construction technology has always played a central role in human life as it is a reflection of the needs and wants of society. The construction industry is one of the biggest sectors of our provincial and national economies. This industry employs over 880,000 Canadian men and women and produces \$134 billion in goods and services (Canadian Construction Association). The demand for workers in trades and technology will increase significantly as Canada moves into the high-tech information economy. Studies show that an aging workforce, expansion of the industry, and technological change will result in a shortage of qualified workers in construction and technology-related industries.

Careers in skilled trades have been identified as high-demand occupations in Canada. Skilled labour shortages and job growth in most sectors offer diverse opportunities for ambitious people with many different interests and work styles. Skill levels required in trade careers are extremely high and demand analytical and



problem-solving abilities, as well as creative thinking skills. Today's tradespeople find they have transferable skills, giving them plenty of choices in terms of how and where they practise their trade in a variety of professional, technical, and skilled occupations.

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Saskatchewan Education. *Construction and Carpentry 10, 20, 30 Curriculum Guide*. Regina, SK: Saskatchewan Education, 2000.

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Construction Information Sources:

<<http://etca.unb.ca/CTCA/sources/toc.html>>

Institute for Research in Construction: <www.nrc.ca/irc/irc.html>

Canadian Contractor Magazine:

<www.canadiancontractormagazine.com>

Canadian Industry Analysis:

<www.corporateinformation.com/casector/Construction.html>

Canadian Construction Association: <www.cca-acc.com>

Building links and wood technology: <www.umass.edu/bmatwt/bm_links.html>
<http://www.umass.edu/bmatwt/bm_links.html>

Construction Innovation Forum: <www.cif.org>



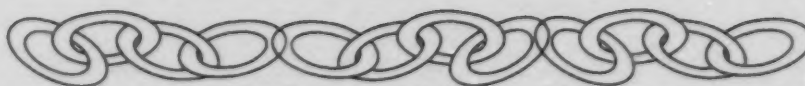
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How to Link Learning to Living

- **Instructional Approaches**
- **Glossary of Instructional Approaches**
- **Evaluation and Assessment**





HOW TO LINK LEARNING TO LIVING

Instructional Approaches

This document will provide examples of instructional methods that expand (increase) the teacher's repertoire to support the learning of students. The following diagram displays instructional approaches and methods of application.



Instructional Approaches: Figure adapted, with permission, from Saskatchewan Education. *Instructional Approaches: A Framework for Professional Practice*. Copyright © 1991 by Saskatchewan Education.



Direct Instruction Strategies

Check off the strategies you are using.

- ☐ Lesson Overviews
- ☐ Guest Speakers
- ☐ Explicit Teaching
- ☐ Instruction of Strategic Process
- ☐ Modelling
- ☐ Didactic Questioning
- ☐ Demonstrations
- ☐ Mini-Lessons
- ☐ Guides for Reading, Listening, Viewing

Glossary of Instructional Approaches

Direct Instruction

Lesson Overviews — Teachers construct the frame that best suits their subject matter, grade, and classroom and lesson organization. Overviews are often put on a transparency or erasable poster so they can be reused with each class. The purpose is to help students focus on the goals of the lesson and to place the lesson in the context of a unit.

Guest Speakers — Inviting professionals or those with information on topics being studied offers students the opportunity to examine topics from a personal point of view and obtain current, reality-based responses to questions.

Explicit Teaching — Teacher-directed lectures can provide students with information that may be required before high-order thinking can occur. Teachers are encouraged to provide information which meets at least two learning modalities (visual, auditory, tactile, and kinaesthetic) by using overheads, writing on the board, and supplying handouts and reading notes.

Instruction of Strategic Processes — The steps that are required in order to complete a task and move on to the next level.

Modelling (role playing, think alouds, and demonstrations) — Teachers model their use of strategies so that students can emulate them. Teachers verbalize all thoughts for students as they demonstrate skills or processes. After several modelling experiences, students should practise using the strategy in pairs. Ultimately, students should work independently with the strategy.

Didactic Questioning — By asking leading questions, the teacher is able to draw information and answers from students.

Demonstrations — A teacher, student, or guest demonstrates a technique to students. This technique works best if students are allowed to practise the technique on their own or in pairs following the demonstration. The teacher or fellow students can offer feedback. Students should be given the opportunity to reflect on their proficiency and areas for improvement.



Mini-Lessons — Lessons that are 20 minutes in length. Recent brain research indicates that learning/retention occurs in the first 20 minutes of each class.

Guides for Reading, Listening, Viewing — Providing students with guides (e.g., guided notes for a video) helps them to identify important information and encourages attentiveness.



Indirect Instruction Strategies

Check off the strategies you are using.

- ☐ Jigsaw
- ☐ Problem Solving
- ☐ Inquiry and Research
- ☐ Reading and Viewing for Meaning
- ☐ Reflection—Learning Logs
- ☐ Admit/Exit Slips
- ☐ Gallery Walks
- ☐ Concept Mapping

Indirect Instruction

Jigsaw — Individuals or small groups each explore a different topic or a different area of the same topic. Individuals or groups are then responsible for teaching their newly acquired knowledge to the rest of the class.

Problem Solving — Stimulate student thinking by presenting a situation in which the student works through a process which leads to a solution.

Inquiry and Research — Individually, in pairs or small groups, students explore topics and present their findings to the class via an oral presentation or Gallery Walk.

Reading and Viewing for Meaning — Techniques of reading print material and viewing visual media to become more conscious, discerning, critical, and appreciative readers.

Reflection — Learning Logs: Students regularly write short, spontaneous, exploratory, personal pieces of writing about the content they are studying. It is writing for thinking and not for creating a polished product.

Admit/Exit Slips — Students fill in these small slips at the beginning and end of the class. They help students to focus on what they expect to learn and reflect on what they have learned. This provides the teacher with information on student learning.

Gallery Walks — Teachers or students display information and samples on various topics throughout the room. Individually, in groups or as a class, students circulate and are presented different information at each station.

Concept Mapping — Assign student(s) a word or idea and have them generate related words and/or topics. Students then examine the relationships between the words and ideas they have generated.





Experiential Learning Strategies

Check off the strategies you are using.

- ☐ Field Trips
- ☐ Simulations
- ☐ Primary Research
- ☐ Games
- ☐ Focused Imaging
- ☐ Observations
- ☐ Role Playing
- ☐ Surveys

Experiential Learning

Field Trips — Students visit sites that relate to topics being studied. The most successful excursions outside the classroom are those that are organized because students have asked to visit a particular site to further some aspect of research they have undertaken.

Simulations — Students practise a skill or technique under controlled or ideal conditions with teacher or peer guidance before they are given the opportunity to perform on their own.

Primary Research — Research that explores original (first-hand) sources. May include interviews or reading first-hand accounts of a person's experience or findings.

Games — Activities based on popular board or television games. Questions are based on course content and can be written by the teacher or students. Can be used to review information or to activate learning prior to starting a unit.

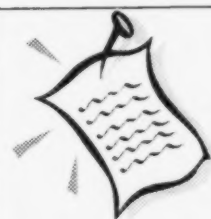
Focused Imaging — Talking students through an event. Students may choose to close their eyes, listen, and visualize as a speaker describes a process, event, or location. Can be enhanced with sound effects.

Observations — Students and teacher can identify phenomena they are looking for and observe the frequency of occurrence. Observations can also be used to determine how a process takes place. It is important to remind students to remain objective (record what they see) and not make assumptions regarding causes of phenomena.

Role Playing — Teacher can provide, or the students can write skits which students act out in an effort to explain or demonstrate an idea or the sequence of a process.

Surveys — Students or teacher develop questions and determine an audience in an effort to study a phenomenon, belief, or the perceptions of others.





Independent Study Strategies

Check off the strategies you are using.

- ☐ Computer-Assisted Instruction (CAI)
- ☐ Essays and Reports
- ☐ Study Guides
- ☐ Learning Contracts
- ☐ Homework, Inquiry, and Research Projects
- ☐ Learning Centres

Independent Study

Computer-Assisted Instruction (CAI) — Software (computer programs) that provide exercises for drill and practise, rapid evaluation of student response, student feedback, concrete representations of abstract concepts, and more one-on-one instructional time.

Essays and Reports — Research and write on a topic assigned by the teacher or one that the students have chosen.

Study Guides — Reviewing content through the use of a document that provides the framework of knowledge covered in a unit or course.

Learning Contracts — Teacher and students create a contract or proposal specifying the topic, learning outcomes, experiences, products, resources, timelines, and assessment.

Homework, Inquiry, and Research Projects — Students are given the opportunity to independently research and examine information that is covered in class.

Learning Centres — Organize the classroom into various activity or learning stations. These offer opportunities for independent inquiry and exposure to a wide variety of materials and sources of information.

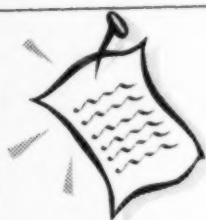
Interactive Instruction

Debates — The class is divided into two groups (teams). Each team is assigned one side of an issue to defend or promote. Teams are responsible for generating support for their side of the issue. Following the time assigned for developing arguments, students individually argue points on behalf of their team by introducing new points or offering a rebuttal to points made by the other team.

Role Playing — The teacher can provide or the students can write skits which students act out in an effort to explain or demonstrate an idea or sequence of a process.

Panels — Groups of people with first-hand knowledge or experience on a topic.





Interactive Instruction Strategies

Check off the strategies you are using.

- ☐ Debates
- ☐ Role Playing
- ☐ Panels
- ☐ Brainstorming
- ☐ Peer Tutoring
- ☐ Discussion
- ☐ Co-operative Learning Groups
- ☐ Problem Solving
- ☐ Talking Circles
- ☐ Peer Editing
- ☐ Interviewing

Brainstorming — Students generate ideas and information as a result of contributing what they already know and building on the ideas of others.

Peer Tutoring — Students learn from and teach one another as they share their work.

Discussion — Most useful way of transmitting information, learning what students think and know, and building a sense of classroom identity when all class members have a chance to speak before anyone responds twice.

Co-operative Learning Groups — Students are placed into small groups or teams, based on the teachers' criteria, and work together at various times to achieve common learning goals.

Problem Solving — A meaningful task which centres on overcoming constraints or limiting conditions.

Talking Circles — Based on First Nations teachings, this process creates a safe environment for discussion of conflicts, difficult situations, or decisions student may face. This allows every student to be heard and teaches students to respect each other and help build consensus (Manitoba Education and Training, *Success for All Learners*, 1996).

Peer Editing — Ongoing groups in which students give feedback on drafts of each other's writings for the purpose of improvement.

Interviewing — Students generate questions to ask and arrange an interview with a person who has first-hand knowledge and/or experience with a topic.



Evaluation and Assessment

Evaluation is the process of interpreting information, deciding to what extent curriculum learning outcomes have been attained, and determining what skills or understanding of content still need to be addressed (Manitoba Education and Training, *Success for All Learners*, 1996).

Classroom assessment is broadly defined as any activity or experience that provides information about student learning. Teachers learn about student progress not only through formal tests, examinations, and projects, but also through moment-by-moment observation of students in action (Manitoba Education and Training, *Senior 1 English Language Arts: A Foundation for Implementation*, 1997). Assessment is the "systematic process of gathering information about what a student knows, is able to do, and is learning to do" (Manitoba Education and Training, *Reporting on Student Progress and Achievement*, 1997, 5). The purpose of assessment is to monitor student progress. Assessment is an ongoing part of learning.

Assessment Types and Purposes

Assessment Types and Purposes	
Assessment of Learning Summative Assessment — (To Prove Learning)	Assessment for Learning Formative Assessment — (To Improve Learning)
➤ How students have changed ➤ Checks what has been learned to date ➤ Is designed for those not directly involved in daily learning and teaching ➤ Is presented in a periodic report ➤ Usually gathers information into easily digestible numbers, scores, and marks ➤ Usually compares the student's learning with either other students or the standard for a grade level ➤ Does not need to involve the student	➤ Data on how the students are changing ➤ Checks learning to decide what to do next ➤ Designed to assist teachers and students ➤ Used in marking and conversation ➤ Usually detailed, specific, and descriptive feedback in words as well as (or instead of) numbers, scores, and marks ➤ Usually focused on improvement, compared with the student's previous best ➤ Needs to involve the student—the person most able to improve learning

Assessment Types and Purposes: Adapted from *Two Key Assessment Purposes* by Ruth Sutton, Education Consultant and Trainer, Salford, England. Used with permission.

Characteristics of Effective Assessment

Effective assessment assists learning. Effective assessment

- is congruent with instruction
- uses a wide range of tools and methods
- is based on authentic tasks
- is ongoing and continuous
- is based on criteria that students know and understand
- is a collaborative process involving students
- focuses on what students have learned and can do

Details on each of the characteristics are provided in *Senior 1 English Language Arts: A Foundation for Implementation*, Manitoba Education and Training, 1997, Overview 24.

Assessment, Feedback, and Learning

Assessment will have a greater impact on learning if it is done carefully. The focus must be on the quality of feedback rather than the quantity of information gathered by the teachers. Research indicates that assessment without good feedback may have little or no impact on the quality of learning, whether the student is a child or an adult (Sutton, 2002). Effective feedback should

- connect with clear learning expectations which have been shared, explained, and illustrated with students beforehand
- be specific, in both the positive and the critical
- offer alternatives, or ask the learner to do so
- be descriptive, rather than consist of judgement alone
- compare the student with other students rarely, if at all
- focus on the task, not the person
- be offered as soon as possible after the event to which it refers
- look forward to the specific next steps to improve performance
- encourage and plan for opportunities for the feedback to be used, as soon as possible in the first instance
- involve the learner wherever possible, to improve the chance of it being understood and acted upon



Tools and Methods

Check off the tools/ methods you are using.

- ☐ Checklists
- ☐ Anecdotal Comments and Records
- ☐ Reviews of Drafts and Revisions
- ☐ Rubrics and Marking Scales
- ☐ Reflection Logs/ Journals
- ☐ Self-Assessment Instruments
- ☐ Peer-Assessment Instruments
- ☐ Written Assignments/Essays
- ☐ Demonstrations/ Presentations
- ☐ Projects
- ☐ Portfolios
- ☐ Journaling or Notebooking
- ☐ Tests and Exams
- ☐ Quizzes

Glossary of Assessment Tools and Methods

Checklists — An instrument that specifies criteria or indicators of merit on which the evaluator marks the presence or absence of the attributes being assessed.

Anecdotal Comments and Records — Data obtained from a written description of an activity or behavioural incident.

Reviews of Drafts and Revisions — Self-correction to improve student's learning. Capability to recognize and correct mistakes.

Rubrics and Marking Scales — A rubric can be an explicit description of performance characteristics corresponding to a point on a rating scale. A scoring rubric makes explicit expected qualities of performance on a rating scale or the definition of a single scoring point on a scale.

Reflection Logs/Journals — A journal or diary, maintained by the student. The log can serve as a source of information for self-assessment or an evaluation, or can be included as part of a portfolio.

Self-Assessment Instruments — The process of judging one's own learning/performance for the purpose of self-improvement (for example, videotape, filling out self-rating forms, keeping a log, or compiling a portfolio).

Peer-Assessment Instruments — Evaluation of a student by another student, usually done to provide feedback to the evaluatee for purposes of improvement.

Written Assignments/Essays — Assess the student's understanding of a subject through a written description, analysis, explanation, or summary. Involves critical thinking, analysis, and synthesis.

Demonstrations/Presentations — Students have the opportunity to show their mastery of subject-area content and procedures. Allows students to verbalize their knowledge.

Projects — Participants actively plan and work with tools, materials, and processes to create a product. Projects are comprehensive demonstrations of skills and knowledge that require a broad range of competencies.



Portfolios — Refer to *Success for All Learners*, Chapter 11.10. Usually files or folders that contain collections of a student's work. They provide a broad portrait of individual performance, assembled over time.

Journaling or Notebooking — Short, spontaneous, exploratory writing, often done amid or between other activities. A record of events which students may be asked to keep as part of their learning.

Tests and Exams — Refer to *Success for All Learners*, Chapter 11.16. A device or technique used to measure the performance, skill level, or knowledge of a learner on a specific subject matter. It usually involves quantification of results — a number that represents an ability or characteristic of the person being tested.

Quizzes — A short test to measure achievement on material recently taught or on any small, newly completed unit of work.



Rewriting Objectives to Learning Outcomes

- **Why Learning Outcomes?**
- **What Are Learning Outcomes?**
- **What Are General Learning Outcomes (GLOs)?**
- **What Are Specific Learning Outcomes (SLOs)?**
- **What Are the Characteristics of Good Learning Outcomes?**
- **What Is the Importance of Action Verbs?**
- **Writing Learning Outcomes**
- **Home Economics/Industrial Arts: Rewriting Objectives to Learning Outcomes Samples**
- **Tips for Rewriting Objectives to Learning Outcomes**





REWRITING OBJECTIVES TO LEARNING OUTCOMES

What Are Learning Outcomes?

Learning outcomes are statements that indicate what learners will know or be able to do as a result of a learning activity. Learning outcomes are usually expressed as knowledge, skills, or attitudes.

Learning outcomes provide direction in the planning of a learning activity. They help to

- focus on the learner's behaviour/action
- serve as guidelines for content, instruction, and assessment
- identify specifically what should be learned
- convey to learners exactly what is to be accomplished

Why Learning Outcomes?

- enable students to learn more effectively
- enable teachers to design their materials more effectively by acting as a template
- enable teachers to select the teaching strategy for the intended learning outcome
- enable teachers to select the assessment strategy based on the materials delivered

What Are General Learning Outcomes (GLOs)?

GLOs identify the broad categories of knowledge, skills, and attitudes that students are expected to learn and be able to do in a subject area or course.

What Are Specific Learning Outcomes (SLOs)?

SLOs identify the knowledge, skills, and attitudes that contribute to a GLO.

What Are the Characteristics of Good Learning Outcomes?

Learning outcomes have three distinguishing characteristics. The specific action by the learner must be:

1. observable
2. measurable
3. obtainable



What Is the Importance of Action Verbs?

The verb chosen for each learning outcome statement should be an action verb which results in behaviour that can be observed and measured.

The following verbs can be used in writing learning outcomes.

Verb List for Writing Student Learning Outcomes					
Verbal/ Linguistic Verbs	Adapt	Discuss	Give in own words	Prescribe	Retell
	Address	Display	Indicate	Present	Reword
	Amend	Distinguish	Inform	Pretend	Rewrite
	Answer	Draft	Interview	Produce	Revise
	Argue	Elaborate	Introduce	Publish	Specify
	Articulate	Embellish	Invent	Question	State
	Associate	Enrich	Justify	Quote	Suggest
	Compose	Enunciate	Label	Read	Summarize
	Convert	Expand	List	Recall	Synthesize
	Convince	Explain	Listen	Recite	Teach
	Create	Express in other terms	Make up	Recognize	Tell
	Critique	Extend	Memorize	Recommend	Translate
	Debate	Form	Modify	Redirect	Transmit
	Defend	Generalize	Name	Relate	Use
	Define	Generate	Paraphrase	Repeat	Write
	Demonstrate	Give	Point out	Report	
	Describe	examples	Predict	Restate	
	Devise			Respond	
Interpersonal Verbs	Advise	Design	Identify	Perceive	Role play
	Articulate	Discuss	Illustrate	Plan	Seek
	Assign	Display	Improve	Play	Share
	Coach	Educate	Interpret	Practise	Show
	Communicate an opinion	Empathize	Interview	Present	Solve
	Compose	Encounter	Instruct	Project	Spell out
	Contribute	Evaluate	Justify	Receive feedback	Teach
	Create	Experience	Listen	Record	Train
	Demonstrate	Explain	Motivate	Relate	Translate
		Give feedback	Organize		Write
Intrapersonal Verbs	Access	Contrast	Evaluate	Point out	Revise
	Advocate	Concentrate	Explain	Position	Rewrite
	Amend	Conclude	Explore	Practise	Select
	Analyze	Contribute	Focus	Prepare	Self-reflect
	Apply	Create	Illustrate	Propose	Share
	Appraise	Critique	Imagine	Rank	Show
	Assess	Decide	Interpolate	Rate	Suggest
	Assimilate	Defend	Interpret	Recognize	Support
	Award	Demonstrate	Judge	Recount	Tell
	Choose	Describe	List	Redraw	Track
	Communicate an idea	Determine	Make	Reflect	Use
	Compare	Discriminate	Narrate	Report	Validate
		Draw	Plan	Review	Write

(continued)

Verb List for Writing Student Learning Outcomes (continued)					
Logical/ Mathematical Verbs	Analyze	Convert	Discriminate	Hypothesize	Rank
	Appraise	Count	Distinguish	Infer	Resolve
	Apply	Criticize	Estimate	Integrate	Select
	Arrange	Decide	Evaluate	Interpret	Separate
	Brainstorm	Decipher	Examine	Link	Sequence
	Break down	Deduce	Exercise	Measure	Simplify
	Calculate	Demonstrate	Extrapolate	Modify	Solve
	Cause/Effect	Derive	Find	Observe	Test
	Check	Detect	examples	Order	Track
	Classify	Determine	Find	Outline	Translate
	Combine	Develop	relationships	Plot	Unify
	Compare	Devise	Find	Ponder	Verify
	Compute	Differentiate	unknown	Predict	
	Conclude	Discern	Formulate	Prove	
	Contrast	Discover	Grasp	Puzzle	
Body/ Kinaesthetic Verbs	Act out	Determine	Interpret	Post	Sort
	Adjust	Develop	Invent	Practise	Spin
	Apply	Devise	Investigate	Prepare	Spring
	Arrange	Discover	Jump	Present	Stage
	Bend	Display	Keep records	Produce	Stand
	Blend	Divide	Leap	Put	Stretch
	Build	Document	Locate	Put in order	Subdivide
	Categorize	Dramatize	Make	Put to use	Survey
	Change	Engage	Make up	Put together	Tabulate
	Choose	Erect	Manipulate	Rearrange	Take apart
	Classify	Examine	Match	Reconstruct	Touch
	Collect	Execute	Measure	Record	Trace
	information	Exercise	Model	Reorder	Track
	Combine	Experiment	Modify	Reorganize	Train
	Compare	Fill in	Move	Restructure	Transfer
	Compile	Find	Operate	Role play	Turn
	Complete	Fold	Order	Rotate	Twist
	Conduct	Form	Organize	Search	Uncover
	Construct	Fuse	Participate	Select	Underline
	Count	Gauge	Perform	Separate	Use
	Create	Group	Pick	Shake	Vault
	Demonstrate	Imitate	Plan	Show	Write
	Design	Inspect	Point	Simulate	

(continued)



Verb List for Writing Student Learning Outcomes (continued)					
Visual/Spatial Verbs	Build	Design	Formulate	Make	Render
	Cast	Diagram	Graph	Mark	Reorder
	Change	Distinguish	Identify	Mind map	Represent
	Chart	Divide	Illustrate	Model	Reproduce
	Convert	Draw	Improve	Organize	Show
	Compose	Elaborate	Integrate	Originate	Sketch
	Copy	Embellish	Interpret	Outline	Transform
	Create	Enlarge	Invent	Produce	
	Decorate	Expand	Label	Rearrange	
	Demonstrate	Form	List	Recognize	
Musical/Rhythmic Verbs	Amplify	Demonstrate	Illustrate	Play	Sing
	Arrange	Elevate	Incorporate	Practise	Stage
	Blend	Enhance	Interpret	Present	Train
	Classify	Explain	Listen	Produce	Modify
	Compare/ Contrast	Express	Make up	Represent	Write about
		Harmonize	Modify	Retell	
	Compose	Hear	Orchestrate	Select	
	Create	Hum	Perform	Show	

Writing Learning Outcomes

Use the blank templates and samples included in this package as a guideline as you rewrite objectives as learning outcomes. Blank templates and samples are also be available online at Manitoba Education and Youth's website (www.edu.gov.mb.ca/ks4/). Additional website links are available on this website.

Home Economics / Industrial Arts: Rewriting Objectives to Learning Outcomes Samples

Home Economics: Food and Nutrition

To integrate a variety of foods from each food group every day in one's diet to provide the energy necessary to lead an active life (refer to page 70).

Home Economics: Human Development

To recognize the importance of meeting basic needs and healthy personal development (refer to page 71).

Home Economics: Clothing and Textiles

To demonstrate an understanding that assists the consumer to make educated decisions about textile products (refer to page 72).



Industrial Arts: Comprehensive Safety

To demonstrate safe practices with tools, machines, materials, and related processes (refer to page 73).

Industrial Arts: Comprehensive Measurement

To select appropriate measurement tools and apply measurements in practice (refer to page 74).

Industrial Arts: Planning and Design

To perform tasks that demonstrate application of the design process to a project (refer to page 75).

Tips for Rewriting Objectives to Learning Outcomes

- Start with the Advanced general learning outcomes and proceed to the Intermediate, Introductory, and then Exploratory learning outcomes. Use a backward process.
- Compare the learning outcomes in each category with what you are currently doing in the classroom.
- Keep the general learning outcomes plain and simple.
- The specific learning outcomes have to support the general learning outcome.







Home Economics/Industrial Arts Learning Outcomes Samples

- **Home Economics: Food and Nutrition**
- **Home Economics: Human Development**
- **Home Economics: Clothing and Textiles**
- **Industrial Arts: Comprehensive Safety**
- **Industrial Arts: Comprehensive Measurement**
- **Industrial Arts: Planning and Design**
- **Blank Learning Outcome Templates**



LEARNING OUTCOMES SAMPLES

This document has been designed to allow for maximum flexibility to provide Middle Years students in Manitoba with the opportunity to experience the hands-on skills development, knowledge, and resources available in Home Economics/Industrial Arts education. Middle Years education can be categorized from Grades 5 to 8 or Grade 6 to Senior 1, depending on the educational setting. It is for this reason that four levels of learning outcomes (exploratory, introductory, intermediate, and advanced) that are not grade-specific have been outlined in this document. The four levels provide an opportunity for each school to select the time allocation that suits the needs of their learning environment to incorporate Middle Years Home Economics/Industrial Arts programming into their educational plan. The inclusion of Home Economics/Industrial Arts education in the Middle Years involves the implementation of the three Cs—*Commitment* to Middle Years Home Economics/Industrial Arts education by *Careful* and *Cooperative* timetabling.



Home Economics: Food and Nutrition

General Learning Outcome: To incorporate a variety of foods from each food group every day in one's diet to provide the energy necessary to lead an active life. Former Major Objective: To relate the selection of foods to the needs of individuals. (<i>Home Economics 7-9, Manitoba Education: 1985, 45</i>)					
Exploratory Specific Learning Outcome(s)	Introductory Specific Learning Outcome(s)	Intermediate Specific Learning Outcome(s)	Advanced Specific Learning Outcome(s)	Suggested Instructional Approaches Refer to pages 49-54	Suggested Assessment Methods/Tools Refer to pages 55-56
1. Identify the groups in <i>Canada's Food Guide to Healthy Eating</i>, including "Others," • Grain Products • Vegetables/Fruit • Milk Products • Meats and Alternatives • Others • Combination Foods 2. Categorize food products into the four groups and "other" foods.	1. Identify the recommended ranges of servings for each food group for Canadians between the ages of four to adult. 2. Determine the amount of food that is the equivalent of one or two servings from a list of food products. 3. List and discuss age and gender factors that determine the number of servings.	1. Identify the leader nutrients associated with each food group. 2. Determine the function of the nutrients in the body. 3. List and discuss activity level and body size factors that determine the number of servings.	1. Compare and contrast various food guides: • China Pagoda • Great Britain Food Plate • Canadian Vegan • American Food Pyramid • Canadian Northern Guide • Canada's Food Guide	• Explicit teaching • Didactic Questioning • Jigsaw • Reading and Viewing for Meaning • Brainstorming • Discussion • Research	• Checklists • Rubrics • Self-assessment • Presentations • Projects
Suggested Learning Activity: Grocery Bag Activity: categorize foods into groupings. Picture Card Activity: available through Manitoba Milk Producers. Create a poster.	Suggested Learning Activity: Personal food recall for one day to calculate the number of servings of food consumed. Determine personal goals/strategies to improve an area of the food guide that is not meeting the recommended daily serving amounts.	Suggested Learning Activity: Taste Test: Processed snacks (fat/sugar/salt-based snacks) compared to snacks chosen from the Food Guide. Taste Test: Compare and contrast "light," "low sodium/fat" products, to regular product lines.	Suggested Learning Activity: Divide class into groups to research and compare/contrast a guide/pyramid/pagoda/plate to the CFG for Healthy Eating.	• Gallery Walk	• Self-assessment • Peer Assessment • Projects • Written Assignments • Presentations • Journaling/Notebooking
Process/Project Plan and prepare a breakfast that encompasses foods from three out of four food groups.	Process/Project Plan and prepare a lunch that encompasses foods from three out of four food groups.	Process/Project Plan and prepare a nutritious snack that encompasses food(s) from the food guide.	Process/Project Each group to plan and prepare a meal plan from one of the food guides/plates/pagodas.	• Research • Gallery Walk	



Home Economics: Human Development

General Learning Outcome: To recognize the importance of meeting basic needs and healthy personal development.

Former Major Objective: To gain an understanding of ourselves through the study of child development. (*Home Economics 7-9, Manitoba Education: 1985, 37*)

Exploratory Specific Learning Outcome(s)	Introductory Specific Learning Outcome(s)	Intermediate Specific Learning Outcome(s)	Advanced Specific Learning Outcome(s)	Suggested Instructional Approaches Refer to pages 49-54	Suggested Assessment Methods/Tools Refer to pages 55-56
1. Identify the basic needs – Physical, Social, Intellectual, and Emotional 2. Identify the people who facilitate meeting basic needs. • Peer groups • Families • Coaches • Teachers, etc.	1. Describe the factors that enhance or inhibit the meeting of basic needs. For example: • Families • Breakfast programs • Friends • Bullies • Government standards of food, health care, etc. • Disasters, etc.	1. Determine the connection between meeting basic needs and healthy personal development.	1. Analyze the special needs of people at various stages of their lives.	• Guest Speaker • Didactic Questioning • Jigsaw • Concept Mapping • Admit/Exit Slips • Essays and Reports • Discussion	• Reflection Logs • Self-assessment • Written Assignment • Quizzes
Suggested Learning Activity Small-group discussions/brainstorming for ten people that students depend on, and why students depend on them. Classify the needs as physical, intellectual, social, or emotional.	Suggested Learning Activity Create a survivor game based on case studies.	Suggested Learning Activity Relate true and fictional stories of feral children (Amala and Kamala of India, the Gazelle boy of the Sahara Desert, etc. vs. Tarzan, Mowgli, Romulus and Remus, George of the Jungle), and compare the capabilities of feral children to those created in fiction, or to students themselves.	Suggested Learning Activity Plan activities that will help provide the basic needs for an elementary-aged or special needs student.	• Explicit Teaching • Didactic Questioning • Problem Solving • Inquiry and Research • Gallery Walks • Primary Research • Focused Imaging • Discussion	• Reflection Logs • Journaling or Notebooking • Rubrics
Process/Project Create a word or photo collage of people who assist students to meet their different types of needs.	Process/Project Develop a class bulletin board featuring pictures, poems, media, articles, etc., that illustrate basic needs being met or requiring a further commitment.	Process/Project Survivor Games: What would you take with you on a 20-year round trip to Mars? On a life raft? View parts of films: <i>Greystoke: The Legend of Tarzan, Lord of the Apes</i> (1984), <i>Castaway</i>.	Process/Project Visit a special needs or elementary school classroom where students would lead or facilitate an activity.	• Role Playing • Guides for Viewing • Problem Solving • Inquiry and Research • Admit/Exit Slips • Gallery Walks • Field Trips • Games	• Self-assessment • Presentations • Portfolios • Rubrics

Home Economics: Clothing and Textiles

General Learning Outcome: To demonstrate an understanding that assists the consumer to make educated decisions about textile products.

Former Major Objective: To gain understanding which assists the consumer in making decisions about textile products. (*Home Economics 7-9, Manitoba Education: 1985, 59*)

Exploratory Specific Learning Outcome(s)	Introductory Specific Learning Outcome(s)	Intermediate Specific Learning Outcome(s)	Advanced Specific Learning Outcome(s)	Suggested Instructional Approaches Refer to pages 49-54	Suggested Assessment Methods/Tools Refer to pages 55-56
1. Identify differences between woven and knit fabrics.	1. Demonstrate knowledge that fibres are the building block of fabric. 2. Demonstrate knowledge that there are two fibre categories: natural/synthetic.	1. Demonstrate knowledge of characteristics of fibres.	1. Make decisions based on previous knowledge to select appropriate fabrics for specific end uses.	• Didactic Questioning • Demonstration • Inquiry and Research • Observations • Gallery Walk	• Journaling and Notebooking
Suggested Learning Activity Fabric grab bag	Suggested Learning Activity Dissect fabric into components: fibre to yarn process. Classify fibres into categories (natural/synthetic) by reading the fibre content labels on clothing.	Suggested Learning Activity Experiment with fabrics: • burn test • absorption test • wrinkle test Research activity: most commonly used fibres.	Suggested Learning Activity Select and assess the fabric that is selected for a specific end use.	• Jigsaw • Inquiry and Research • Observations	• Checklist • Quizzes or Tests
Process/Project Select knit and woven fabric to create a textile product. • bean bag project • book marks • pencil case	Process/Project Take students fabric shopping. Collect fibre content information from reading fibre content labels on items at home. Using a chart, classify items into fibre categories: natural/synthetic. Classify the findings through the creation of a chart.	Process/Project Match using prior knowledge: textile items to fabric with appropriate fibre content (e.g., nylon for carpeting).	Process/Project Match characteristics of fibres to the most appropriate end use in a project.	• Field trip • Inquiry and Research • Problem Solving • Survey • Primary Research • Guest Speakers	• Rubric: www.rubistar.4teachers.org • Demonstration/ Presentation • Checklists • Self-assessment • Peer Assessment • Journaling or Notebooking • Reflection



Industrial Arts: Comprehensive Measurement

General Learning Outcome: To select appropriate measurement tools and apply measurements in practice. Former Major Objective: To gain knowledge and skills related to imperial and SI metric systems of measurement, measuring devices, and testing devices. (Industrial Arts 7-9: Core Safety Objective in All Curricula, Manitoba Education: 1983)					
Exploratory Specific Learning Outcome(s)	Introductory Specific Learning Outcome(s)	Intermediate Specific Learning Outcome(s)	Advanced Specific Learning Outcome(s)	Suggested Instructional Approaches Refer to pages 49-54	Suggested Assessment Methods/Tools Refer to pages 55-56
1. Define measurement and the need for accurate measurement. 2. Identify units and use measurement for practical purpose. 3. Identify and compare the units in imperial vs. metric.	1. Demonstrate the use of various measuring instruments. 2. Apply measurement units and use tools specific to performing a task, e.g., • Scale ruler • Tape measure • Micrometer • Point system 3. Identify characteristics of the measurement system.	1. Interpret units of measurement from various sources and apply to a task. 2. Manipulate numbers in the measurement system.	1. Decide, select, and use appropriate measurement units and tools in performing a task. 2. Apply knowledge or ability to manipulate numbers in the measurement system to alter an existing pattern plan.	• Demonstration • Projects • Quizzes • Tests • Rubric	• Demonstrations • Projects • Quizzes • Tests • Rubric
Suggested Learning Activity Identify situations where measurement is used. Select appropriate measurement tools to match a task.	Suggested Learning Activity Transfer measurements from drawing to material.	Suggested Learning Activity Read and interpret detailed project plans such as construction working drawings (blueprint). Use measurement tools to measure area and linear units.	Suggested Learning Activity Create a plan involving measurements. Assign units of measure to a project, or alter plans for an existing project. Use measurement tools to create a bill of materials.	• Problem Solving • Inquiry and Research • Projects • Primary Research • Observations	• Self-assessment • Checklist • Rubrics • Peer Assessment • Portfolio • Review of Drafts/Revisions • Test and Exams
Process/Project Measure common objects with measurement tools. Draw simple two-dimensional layout.	Process/Project Draw three-dimensional layout. Construct a project from wood, paper, or metal that involves transferring measurements using specific tools.	Process/Project Read and interpret measurements from a plan and use appropriate tools to lay out and measure materials needed for construction of a wood, paper, or metal project. Create plan view construction drawings.	Process/Project Alter dimensions of an existing plan as part of the construction of a project. Select and use appropriate measurement and layout tools in the process. Plan/design a project and apply measurement skills during the development of the project.	• Project	• Self-assessment • Checklist • Rubrics • Peer Assessment • Portfolio



Industrial Arts: Planning and Design

General Learning Outcome: To perform tasks that demonstrate application of the design process to a project.

Former Major Objective: To develop skills in and to understand the principles of planning and design, and to apply these skills and principles to electricity/electronics. (*Industrial Arts 7-9: Power and Energy*, Section 5, Planning and Design, Manitoba Education: 1983)

Exploratory Specific Learning Outcome(s)	Introductory Specific Learning Outcome(s)	Intermediate Specific Learning Outcome(s)	Advanced Specific Learning Outcome(s)	Suggested Instructional Approaches Refer to pages 49-54	Suggested Assessment Methods/Tools Refer to pages 55-56
1. Identify and explain the steps in the design process. Suggested Learning Activity Practise brainstorming stage of the design process. Using an existing invention, identify the steps for its development. Process/Project Represent the steps of designing in a usual presentation chart.	1. Adapt an existing product utilizing the design process. Suggested Learning Activity Change a portion of an existing design. Process/Project Investigate the opportunity to modify an existing product.	1. Use the design process in a prescribed activity. Suggested Learning Activity Follow a prescribed activity that employs the design process. Process/Project Invent a new product and build a prototype.	1. Apply the design process. Suggested Learning Activity Using the design process, create a student-initiated task/project. Process/Project Brainstorm in groups as a way of gathering ideas for possible project concepts. Research local community for possible design considerations.	• Modelling • Demonstration • Discussion • Interactive Instruction Strategies, pp. 53-54 • Didactic Questioning • Problem Solving • Essay and Report • Interactive Instruction Strategies, pp. 53-54 • Brainstorming • Jigsaw • Guest Speakers • Inquiry and Research • Peer Editing • Interviewing • Interactive Instruction Strategies, pp. 53-54	• Checklists • Self-Assessment • Rubrics • Project • Demonstrations • Presentations • Peer Assessment • Reflection • Logs/Journals • Project

General Learning Outcome: Former Major Objective:					
Exploratory Specific Learning Outcome(s)	Introductory Specific Learning Outcome(s)	Intermediate Specific Learning Outcome(s)	Advanced Specific Learning Outcome(s)	Suggested Instructional Approaches Refer to pages 49-54	Suggested Assessment Methods/Tools Refer to pages 55-56





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